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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,351	08/07/2006	Donald T. Moir	2709,2008-003	1426
21005 7590 09/29/2008 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133				
EXAMINER				
ZAREK, PAUL E				
ART UNIT		PAPER NUMBER		
4161				
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09/29/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/542,351

**Applicant(s)**

MOIR ET AL.

**Examiner**

PAUL ZAREK

**Art Unit**

4161

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12 is/are rejected.
- 7) ☒ Claim(s) 13, 15-17 and 19 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Final Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

Continuation of Disposition of Claims: Claims pending in the application are 1-8,12,13,15-17,19,21,22,24,26,27,29,31,32,34,37-39,41,42,44,46,48,49 and 51.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 21,22,24,26,27,29,31,32,34,37-39,41,42,44,46,48,49 and 51.

## DETAILED ACTION

### *Status of the Claims*

1. Claims 9-11, 14, 18, 20, 23, 25, 28, 30, 33, 35-36, 40, 43, 45, 47, 50 and 52 have been canceled in a preliminary amendment filed on 07/14/2005. Claims 1-8, 12-13, 15-17, 19, 21-22, 24, 26-27, 29, 31-32, 34, 37-39, 41-42, 44, 46, 48-49 and 51 are pending.

### *Election/Restrictions*

2. Applicant's election with traverse of Group III, and a species election of Compound ii, wherein:

Bacterial infection to be treated: *S. aureus*;  
R1= thienyl;  
R2= thienyl;  
X1= -CH<sub>2</sub>-; and,  
X2= is 4-benzoic acid

in the reply filed on 08/07/2008 is acknowledged. The traversal is on the ground(s) that Compound 4 of Figure 1 in Krauze, et al. (European Journal of Medicinal Chemistry, 1999) did not teach an embodiment of the claimed invention. Specifically, X2 does not encompass piperidyl, as is taught by Krauze, et al. This is not found persuasive. Examiner acknowledges Applicant's argument. However, Examiner respectfully directs Applicant to Compound 1 of Figure 1 of Krauze, et al., which is a derivative of Compound i, where R1 is phenyl, R2 is pyridyl, and R3 is hydrogen.

The requirement is still deemed proper and is therefore made FINAL.

3. After an extensive search, the elected compound was found to be free of the prior art. Upon allowance of the generic claim, Applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. Claims 1-8, 12-13, 15-17, and 19 are examined. Claims 21-22, 24, 26-27, 29, 31-32, 34, 37-39, 41-42, 44, 46, 48-49 and 51 are withdrawn as being drawn to a non-elected invention.

***Priority***

4. Applicant's claim for the benefit of a prior-filed international application PCT/US04/01327 (filed on 01/16/2004), which claims the benefit of provisional application 60/441,411 (filed on 01/17/2003) under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. The effective filing date of the instant application is 01/17/2003.

***Information Disclosure Statement***

5. Examiner notes that no information disclosure statement has been filed.

***Claim Objections***

6. Claims 13, 15-17, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghorab and Hassan (Phosphorus, Sulfur and Silicon and Related Elements, 1998) in view of Thornber (Chemical Society Reviews, 1979).

10. Claim 1 is drawn to a method of treating a subject for a bacterial infection comprising administration of an effective amount of compound i or ii. Claim 2 limits the subject treated to human. Claims 3 and 4 limit the bacteria to be treated. Claims 5-8 limit the subgroups of compound i. Ghorab and Hassan teach an antibacterial compound which is an embodiment of compound i in which R1 is thienyl, R2 is methoxyphenyl, and R3 is hydrogen (compound 10 pg 255). Compound 10, taught by Ghorab and Hassan, is possesses antimicrobial activity against a host of Gram positive bacteria, including *E. coli* and *S. aureus* (pg 256, Table 1). This

compound taught by Ghorab and Hassan is specifically removed from the genus claimed in Claim 1. Thornber teaches that thiophenyl (the common name for thienyl) and furanyl groups are “classical isosters” (pg 564) of each other and one of ordinary skill in the art would be expected to be functionally equivalent. One of ordinary skill would also be motivated to take an isoster of a known antibacterial agent and use it to treat bacterial infections. Therefore, it would have been *prima facie* obvious to one of ordinary skill in the art to modify the antibacterial compound 10 of Ghorab and Hassan by incorporating the teachings of Thornber and treat bacterial infections with compound i in which R1 is furanyl, R2 is methoxyphenyl, and R3 is hydrogen.

11. Claims 1-3, 5, 6, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Attia, et al. (Pharmazie, 1995), in view of Bakhite, et al. (Bulletin of the Korean Chemical Society, 2002).

12. Claim 1 of the instant application is drawn to a method of treating a bacterial infection with a derivative of compound ii. Claim 2 limits the subject to be treated to human. Claim 3 limits the bacteria to express *fabI*. Claims 5, 6, and 12 limit the derivative of compound ii. Compound ii is a cyanopyridine. Attia, et al., teach that cyanopyridines are known antimicrobials (pg 455, Introduction, lines 6-7). Bakhite, et al., teach a derivative of compound ii, wherein:

R1= thienyl;  
R2= phenyl;  
X1= methylene;  
X2= (C=O)NR<sup>a</sup>R<sup>b</sup>;  
R<sup>a</sup>= hydrogen; and,  
R<sup>b</sup>=C<sub>6</sub> heteroaryl (pyridine) (Scheme 1, Compound 3d).

Bakhite, et al., further teach that the disclosed compound possesses *in vitro* antibacterial activity over *Staphylococcus aureus* and *Serratia rhodenii* (Table 3). It would have been *prima facie*

obvious to one of ordinary skill in the art to use compound 3d, taught by Bakhite, et al., which is known to possess antibacterial effects against some *FabI*-expressing bacteria, and is of a class of compounds (cyanopyridines) which are known antimicrobial agents in a treatment of humans infected with *fabI*-expressing bacteria.

### ***Conclusion***

13. No claims are allowed.
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAUL ZAREK whose telephone number is (571) 270-5754. The examiner can normally be reached on Monday-Thursday, 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK NOLAN can be reached on (571) 272-0847. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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PEZ

/Patrick J. Nolan/

Supervisory Patent Examiner, Art Unit 4161